

**COMPLETE LISTING OF ALL CLAIMS IN THE APPLICATION**

1. (canceled)

2. (currently amended) A process for purification of ethylene oxide by distillation,

comprising the step in which

- an aqueous mixture comprising ethylene oxide, formaldehyde and at least 5% by weight of water is introduced via a feed into a distillation apparatus comprising at least one packed column which contains a structured or bulk packing and has a specific mass transfer area A, the mixture being introduced at a height above the bottom of at least  $x^{\min}$ , in m, which for a given specific mass transfer area A, in  $\text{m}^2/\text{m}^3$ , is given by the equation

$$x^{\min} = 5.5 \text{ m} - A \cdot 0.006 \text{ m}^2,$$

- pure ethylene oxide containing 4 ppm or less formaldehyde, is taken off at the top and
- in the bottom phase a mixture is obtained which contains less than 5% by weight of ethylene oxide;

an acetaldehyde enriched fraction is removed as a sidestream from the column

at a side take-off located between the top and bottom of the column,

and wherein the aqueous mixture is introduced via the feed at a height of from

$1.5x^{\min}$  to  $7x^{\min}$ .

3. (canceled)

4. (previously presented) A process as claimed in claim 2, wherein the specific mass

transfer area A is in the range from 100 m<sup>2</sup>/m<sup>3</sup> to 500 m<sup>2</sup>/m<sup>3</sup>.

5. (canceled)

6. (previously presented) A process as claimed in claim 2, which further comprises a step in which further mixture, comprising water, is additionally introduced via a feed line at a height of at least one theoretical stage or plate above the feed of the aqueous mixture.

7. (canceled)

8. (canceled)

9. (canceled)

10. (previously presented) A process as claimed in claim 4, which further comprises a step in which further mixture, comprising water, is additionally introduced via a feed line at a height of at least one theoretical stage of plate above the feed of the aqueous mixture.

11. (currently amended) A process for purification of ethylene oxide by distillation,

comprising the step in which

- an aqueous mixture comprising ethylene oxide, formaldehyde and at least 5% by weight of water is introduced via a feed into a distillation apparatus comprising at least one packed column which contains a structured or bulk packing and has a specific mass transfer area A, the mixture being introduced at a height above the bottom of at least x<sup>min</sup>, in m, which, for a given specific mass transfer area A, in m<sup>2</sup>/m<sup>3</sup>, is given by the equation

$$x^{\min} = 5.5 \text{ m} - A \cdot 0.006 \text{ m}^2,$$

- pure ethylene oxide containing 4 ppm or less formaldehyde, is taken off at the top and
- in the bottom phase a mixture is obtained which contains less than 5% by weight of ethylene oxide;

an acetaldehyde enriched fraction is removed as a sidestream from the column at a side take-off located between the top and bottom of the column,

and wherein the specific mass transfer area A is in the range from  $100 \text{ m}^2/\text{m}^3$  to  $400 \text{ m}^2/\text{m}^3$ .

12. (previously presented) A process as claimed in claim 11, which further comprises a step in which further mixture, comprising water, is additionally introduced via a feed line at a height of at least one theoretical stage or plate above the feed of the aqueous mixture.